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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,741	07/22/2002	Yu-Min Tsou	43040	2685
109	7590	03/16/2005	EXAMINER	
THE DOW CHEMICAL COMPANY INTELLECTUAL PROPERTY SECTION P. O. BOX 1967 MIDLAND, MI 48641-1967			BELL, BRUCE F	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/089,741

Applicant(s)

TSOU ET AL.

Examiner

Bruce F. Bell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-15 is/are allowed.
- 6) ☒ Claim(s) 1-6, 16 and 21-27 is/are rejected.
- 7) ☒ Claim(s) 17-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Rhoda et al (US 3,486,928).

Rhoda et al disclose depositing platinum or platinum alloys upon the surface of porous nickel and carbon particles. See col. 3, lines 14-18. Example 2 of the patent discloses a nickel powder being coated with catalytically active platinum. The prior art of Rhoda et al anticipates the applicants' instant invention as set forth above with respect to the instant claims.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoda et al (US 3,486,928) in combination with Tsou et al (US 5,645,930).

Rhoda et al is as disclosed above with respect to the 35 USC 102 rejection set forth.

Rhoda et al fails to teach the porous coating having a particulate material of the specific oxide materials listed in the claim in admixture with the electrocatalytic metal continuous phase.

Tsou et al disclose a particulate material of an inorganic oxide that is electrically conductive and includes materials such as oxides of ruthenium, iridium, rhodium, and platinum. The electrically conductive material can also be oxides of chromium, molybdenum, technetium, tungsten, manganese and lead. See col. 7, lines 31-45. Tsou et al also discloses that the platinum group metal functioning as the matrix material is deposited so as to entrap the particulate material and form a porous coating. See col. 8, lines 16-19.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though the prior art of Rhoda et al fails to teach the porous coating having oxide particulate in admixture with the electrocatalytic metal continuous phase, the prior art of Tsou et al shows that it is known in the art to make a catalytic powder to be used on electrodes to make durable electrodes for use in electrolytic cells. Therefore, one having ordinary skill in the art would have the ability to make the catalytic powder as set forth in the Tsou et al patent having oxide particulate in admixture with the electrocatalytic metal continuous phase, since this type of catalytic powder is shown to be used on electrodes to give a durable yet active internal surface area. Further, even though the prior art of Rhoda et al discloses that the porous coating in on a plurality of support metal particles, one having

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ordinary skill in the art would know that the porous coating could be applied on an electrically conductive substrate instead of on electrically conductive metal particles, since the particles are a type of substrate. The particle size of the catalytic powders is conventional in the prior art and one having ordinary skill in the art would have the knowledge to use this particle size in the making of the catalytic powder as set forth in the instant claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 16, 21, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsou et al (US 5,645,930).

Tsou et al disclose a process for making an electrode by forming a catalytic powder, mixing the powder with a dispensing medium to form a mixture and applying the mixture to a conductive metal substrate and baking in oxygen. See col. 14, lines 23-31. Tsou et al disclose that thermal spraying of the platinum group metal and the metal oxide powder mixture are applied to a metal substrate using a plasma spray or arc-spray apparatus. See col. 7, lines 61-63. Tsou et al also shows that plating with a reinforcement layer of a transition metal such as Ni is performed and that the transition metal is a phosphorous or boron material.

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The prior art of Tsou et al anticipate the applicants' instant invention as set forth above with respect to the instant claim.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsou et al (US 5,645,930) in combination with Beer (EP 0174413).

Tsou et al is as disclosed above in the 35 USC 102 rejection above.

Tsou et al does not disclose the dispensing medium, and metal oxide precursor materials as set forth in the dependent claims.

Beer et al discloses in Example 1 and 5 the various dispensing materials and the metal oxide precursor materials known in the art for making an electrode with a catalytic powder. Example 1 shows that dispensing mediums of n-propanol are known and that the mixtures of ruthenium-titanium oxide materials mixed crystal coatings are also known. Further the precursor materials of butyl titanate and  $\text{RuCl}_3$  are known in the art to be used in forming the catalytic powder once the mixture is coated and is heated in air at  $500^{\circ}\text{C}$  for ten minutes.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though the prior art of Tsou et al does not disclose the dispensing medium and metal

oxide precursor materials, the prior art of Beer et al discloses that these materials are known materials used in the making of catalyst powders and would have been within the ability of the person having ordinary skill in the art at the time the instant invention was made.

***Allowable Subject Matter***

9. Claims 7-15 and 17-20 are allowable over the prior art of record.
10. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest that the catalytic powder comprises support metal particles covered with an electrocatalytic metal porous coating, which creates a larger surface area and lowers the effective current density and overpotentials.
11. Claims 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

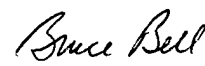
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BFB  
March 14, 2005

  
Bruce F. Bell  
Primary Examiner  
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